

REMARKS

This amendment is being filed in response to the Office Action having a mailing date of September 20, 2005. Claims 1-18 are amended as shown. New claims 19-21 are added. No new matter has been added. With this amendment, claims 1-21 are pending in the application.

I. Objections

In the Office Action, the Examiner objected to claims 17 and 18 because of some informalities. With the amendments to claims 17 and 18 as shown, it is believed that these informalities have now been addressed and that the objections have been overcome.

II. Double Patenting

In the Office Action, claims 1-8 and 11-18 were rejected under the doctrine of obviousness-type double patenting over claims 1-15 of commonly owned U.S. Patent No. 6,947,329 (Campardo). With the amendments to claims 1-8 and 11-18 as shown, the double patenting rejection is made moot.

If (after reviewing and considering the present amendments to claims 1-8 and 11-18) the Examiner feels that the double patenting rejection is still warranted, the Examiner is kindly requested to telephone the undersigned attorney. The undersigned attorney can then consider the basis for the Examiner's reasons for maintaining the double patenting rejection, and if appropriate, can then fax a terminal disclaimer to the Examiner so that allowance of the present application can be expedited.

III. Discussion of the Applicants' Embodiments in View of the Cited References

In the Office Action, claims 1-3 were rejected under 35 U.S.C. § 102(b) as being anticipated by Mehrotra (U.S. Patent No. 5,659,550). Claims 4 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mehrotra in view of Horiguchi (U.S. Patent No.

5,262,993). Claims 5 and 9-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mehrotra in view of Horiguchi (U.S. Patent No. 5,262,055). Claims 11-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Horiguchi '055 and Horiguchi '993. It appears that the other claims were not rejected on the basis of prior art. For the reasons set forth below, the applicants respectfully disagree with the Examiner's prior art rejections, and request that all pending claims be allowed.

A disclosed embodiment will now be discussed in comparison to the applied references. Of course, the discussion of the disclosed embodiment, and the discussion of the differences between the disclosed embodiment and subject matter described in the applied references, do not define the scope or interpretation of any of the claims. Instead, such discussed differences are intended to merely help the Examiner appreciate important claim distinctions discussed thereafter.

One embodiment of the present invention involves a method to erase memory cells. If a spurious current indicative of a fail state is detected, then a failed row associated with the fail state is identified and electrically isolated. According to one embodiment, the failed row that contains the failed cell is isolated by placing the failed row in a floating state. Placing the failed row in the floating state involves cutting off or otherwise decoupling the failed row from potentials of different polarity (*e.g.*, a positive supply VPCS and a negative supply HVNEG, for instance). *See, e.g.*, page 10, lines 12-20 of the present application. Other example implementations may perform the isolation by decoupling the failed row from first and second potentials of a same polarity, a first potential and a second potential that is ground, or other arrangement. Thus, in one embodiment, the failed row can be completely cut off or otherwise decoupled from power supplies, while other rows in a same or different sector can continue to be supplied with power.

Mehrotra does not disclose, teach, or suggest placing the failed row in a floating state by decoupling the failed row from power supplies of different polarity. For example, the Examiner has cited the Abstract and column 4, lines 19-28 of Mehrotra as disclosing electrical isolation of the failed row. However, a closer reading of Mehrotra reveals that Mehrotra does

not involve a failed row that is placed in a floating state by decoupling power supplies from the failed row.

For example, column 12, lines 55-57 and column 13, lines 7-9 of Mehrotra describe electrically isolating a column by “turning off one or more adjacent cells, segments or columns to the source side of the defective column” (emphasis added). Thus, Mehrotra makes no mention whatsoever of the failed row (or column) itself being placed in a floating state, and further makes no mention whatsoever of decoupling the failed row (or column) itself from power supplies. Rather, it is the adjacent cells on the source side of the defective column that are “turned off.” That is, the other (non-source) side(s) of the defective column itself remains coupled to power supplies, and thus the defective column still remains powered, albeit electrically isolated.

Both Horiguchi ‘055 and Horiguchi ‘993 also fail to disclose, teach, or suggest placement of a failed row in a floating state by respectively decoupling the failed row from positive and negative supply voltages. The Examiner has admitted on page 7 of the Office Action that Horiguchi ‘055 does not disclose isolation of a failed block. To supply the missing teachings of Horiguchi ‘055, the Examiner has cited the power supplies VPL and VMP of Horiguchi ‘993 that can be involved in connection with isolation of a failed block.

However, a closer reading of Horiguchi ‘993 reveals several differences between Horiguchi ‘993 and the applicants’ embodiments. First, Horiguchi ‘993 involves a “memory mat,” which according to column 4, lines 52-54 comprise word lines and data lines. Thus, it appears that the “mat” of Horiguchi ‘993 is similar to or the same as a “sector” made up of multiple rows and columns, and is not referring to an individual row. Therefore, when Horiguchi ‘993 describes not-supplying the voltages VMP and VPL to the mat 10 that is defective (*see, e.g.,* column 6, lines 8-10 of Horiguchi ‘993), he is cutting off the supply voltages to all rows in the same mat 10. Thus, rows that may not be defective also lose their power supply. This technique of Horiguchi ‘993 is different from placing a failed row in a sector in a floating state by decoupling the failed row from the supply voltages, while other rows in the same sector can continue to remain powered.

IV. Discussion of the Claims

Accordingly, with these differences in mind, independent claim 1 has been amended to recite --the electrical isolating including placing the failed row in a floating state by decoupling the failed row from first and second power supplies of different polarity--. As explained above, Mehrotra does not disclose, teach, or suggest this feature. Mehrotra does not place a failed row in a floating state and further does not decouple the failed row from power supplies. As explained above, only the adjacent cells on a source side of the failed column of Mehrotra are turned off. With this amendment, claim 1 is now allowable.

Independent claim 11 has been amended to recite that the switches can --place the failed row in a floating state by respectively decoupling the failed row from the positive and negative voltages--. Since this feature is not disclosed, taught, or suggested by Horiguchi '055, Horiguchi '993, and/or by any of the other cited references, whether singly or in combination, claim 11 is now allowable. For example and as explained above, Horiguchi '993 does not place a failed row in a floating state, and instead turns off power to an entire sector/mat.

New dependent claims 19-20 specify that other rows in the same sector continue to be supplied while the failed row is in the floating state. As explained above, this feature is not provided by Horiguchi '993, since all his rows in the mat 10 are not supplied by VMP and VPL when a defective condition is detected. Also, Mehrotra does not disclose, teach, or suggest a floating state of a failed row in the context recited in claims 19-20. Accordingly, claims 19-20 are allowable as well.

Various other amendments have been made to the claims to make their recitations consistent with the amended independent claims, to provide proper antecedent basis, or to otherwise place the claims in better form. The appropriate fee to cover the additional claim(s) is included with this amendment.

V. Conclusion

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, given the above amendments and accompanying remarks, the independent claims are now in condition for allowance. The

dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

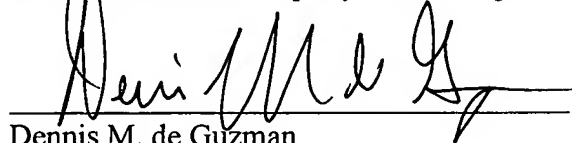
If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 622-4900.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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Enclosures:

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